

August 23, 2016

Meagan E. Ormand
Golder Associates Inc.
2108 W. Laburnum Ave.
Suite 200
Richmond, VA 23227

RE: Project: Bremo Weekly Process
Pace Project No.: 92309034

Dear Meagan Ormand:

Enclosed are the analytical results for sample(s) received by the laboratory on August 16, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

This revision was issued o 8/18/16 to removed incorrect qualification and to correct the reported method for Chloride.

This revision was issued on 8/23/16 to correct several QC issues and change the TSS and Chloride Case Narrative format.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Nicole Gasiorowski
nicole.gasiorowski@pacelabs.com
Project Manager



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

August 23, 2016
Page 2

Enclosures

cc: Ron DiFrancesco, Golder Associates Inc.
Martha Smith, Golder Associates Inc.
Mike Williams, Golder Associates Inc



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

CERTIFICATIONS

Project: Bremo Weekly Process

Pace Project No.: 92309034

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074

Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Charlotte Certification IDs

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

Eden Certification IDs

205 East Meadow Road Suite A, Eden, NC 27288
North Carolina Drinking Water Certification #: 37738

North Carolina Wastewater Certification #: 633
Virginia/VELAP Certification #: 460025

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

SAMPLE ANALYTE COUNT

Project: Bremo Weekly Process

Pace Project No.: 92309034

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92309034001	T3-160816-1210-S3	SM 2540D	KCE	1	PASI-E
		EPA 350.1 1993 Rev 2.0	KCE	1	PASI-E
		SM 4500-Cl-E-2011	KCE	1	PASI-E
		EPA 1664B	JMS	1	PASI-C
		EPA 200.7	AIS	1	PASI-O
		Trivalent Chromium Calculation	CKJ	1	PASI-O
		EPA 200.8	CKJ	10	PASI-O
		EPA 245.1	SER	1	PASI-A
		EPA 218.7	AEM	1	PASI-O

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92309034

Method: SM 2540D

Description: 2540D TSS, Low-Level, Eden

Client: Golder_Dominion_Bremo

Date: August 23, 2016

General Information:

1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92309034

Method: EPA 350.1 1993 Rev 2.0

Description: 350.1 Ammonia

Client: Golder_Dominion_Bremo

Date: August 23, 2016

General Information:

1 sample was analyzed for EPA 350.1 1993 Rev 2.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 325291

- T3-160816-1210-S3 (Lab ID: 92309034001)
 - Nitrogen, Ammonia

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92309034

Method: SM 4500-Cl-E-2011

Description: 4500 Chloride

Client: Golder_Dominion_Bremo

Date: August 23, 2016

General Information:

1 sample was analyzed for SM 4500-Cl-E-2011. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 325290

- T3-160816-1210-S3 (Lab ID: 92309034001)
 - Chloride

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92309034

Method: EPA 1664B

Description: HEM, Oil and Grease

Client: Golder_Dominion_Bremo

Date: August 23, 2016

General Information:

1 sample was analyzed for EPA 1664B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92309034

Method: EPA 200.7

Description: 200.7 MET ICP

Client: Golder_Dominion_Bremo

Date: August 23, 2016

General Information:

1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92309034

Method: Trivalent Chromium Calculation

Description: Trivalent Chromium Calculation

Client: Golder_Dominion_Bremo

Date: August 23, 2016

General Information:

1 sample was analyzed for Trivalent Chromium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92309034

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: Golder_Dominion_Bremo

Date: August 23, 2016

General Information:

1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 315499

1g: Analyzed 08/23/16 10:44:31

- LCS (Lab ID: 1675070)
- Silver

2g: Analyzed 08/23/16 10:48:08

- MS (Lab ID: 1675071)
- Silver

3g: Analyzed 08/23/16 10:51:43

- MSD (Lab ID: 1675072)
- Silver

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92309034

Method: EPA 245.1

Description: 245.1 Mercury

Client: Golder_Dominion_Bremo

Date: August 23, 2016

General Information:

1 sample was analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

PROJECT NARRATIVE

Project: Bremo Weekly Process

Pace Project No.: 92309034

Method: EPA 218.7

Description: Hexavalent Chromium by IC

Client: Golder_Dominion_Bremo

Date: August 23, 2016

General Information:

1 sample was analyzed for EPA 218.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 315518

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92309034001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1675136)
 - Chromium, Hexavalent
- MSD (Lab ID: 1675137)
 - Chromium, Hexavalent

Additional Comments:

Analyte Comments:

QC Batch: 315518

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 1675136)
 - Chromium, Hexavalent
- MSD (Lab ID: 1675137)
 - Chromium, Hexavalent

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: Bremo Weekly Process

Pace Project No.: 92309034

Sample: T3-160816-1210-S3		Lab ID: 92309034001		Collected: 08/16/16 12:10		Received: 08/16/16 14:00		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
2540D TSS, Low-Level, Eden		Analytical Method: SM 2540D							
Total Suspended Solids	ND	mg/L	1.0	1		08/17/16 12:43			
350.1 Ammonia		Analytical Method: EPA 350.1 1993 Rev 2.0							
Nitrogen, Ammonia	0.62	mg/L	0.20	1		08/17/16 16:49	7664-41-7		
4500 Chloride		Analytical Method: SM 4500-Cl-E-2011							
Chloride	42.6	mg/L	5.0	5		08/17/16 13:03	16887-00-6		
Field Data		Analytical Method:							
Collected By	L. Hamelman			1		08/16/16 12:16			
Collected Date	08/16/16			1		08/16/16 12:16			
Collected Time	12:10			1		08/16/16 12:16			
Field pH	8.0	Std. Units	0.10	1		08/16/16 12:16			
HEM, Oil and Grease		Analytical Method: EPA 1664B							
Oil and Grease	ND	mg/L	5.0	1		08/17/16 08:50			
200.7 MET ICP		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Tot Hardness asCaCO3 (SM 2340B	141000	ug/L	3300	1	08/17/16 12:06	08/17/16 15:51			
Trivalent Chromium Calculation		Analytical Method: Trivalent Chromium Calculation							
Chromium, Trivalent	ND	ug/L	5.0	1		08/17/16 17:15	16065-83-1		
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Antimony	5.2	ug/L	5.0	1	08/17/16 12:06	08/17/16 16:06	7440-36-0		
Arsenic	59.2	ug/L	5.0	1	08/17/16 12:06	08/17/16 16:06	7440-38-2		
Cadmium	ND	ug/L	1.0	1	08/17/16 12:06	08/17/16 16:06	7440-43-9		
Copper	ND	ug/L	5.0	1	08/17/16 12:06	08/17/16 16:06	7440-50-8		
Lead	ND	ug/L	5.0	1	08/17/16 12:06	08/17/16 16:06	7439-92-1		
Nickel	ND	ug/L	5.0	1	08/17/16 12:06	08/17/16 16:06	7440-02-0		
Selenium	ND	ug/L	5.0	1	08/17/16 12:06	08/17/16 16:06	7782-49-2		
Silver	ND	ug/L	0.40	1	08/17/16 12:06	08/17/16 16:06	7440-22-4		
Thallium	ND	ug/L	1.0	1	08/17/16 12:06	08/17/16 16:06	7440-28-0		
Zinc	ND	ug/L	25.0	1	08/17/16 12:06	08/17/16 16:06	7440-66-6		
245.1 Mercury		Analytical Method: EPA 245.1 Preparation Method: EPA 245.1							
Mercury	ND	ug/L	0.10	1	08/17/16 10:55	08/17/16 13:22	7439-97-6		
Hexavalent Chromium by IC		Analytical Method: EPA 218.7							
Chromium, Hexavalent	ND	ug/L	1.0	1		08/17/16 14:10	18540-29-9	M1	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92309034

QC Batch: 325341

Analysis Method: SM 2540D

QC Batch Method: SM 2540D

Analysis Description: 2540D TSS, Low Level, Eden

Associated Lab Samples: 92309034001

METHOD BLANK: 1802374

Matrix: Water

Associated Lab Samples: 92309034001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	1.0	08/17/16 12:42	

LABORATORY CONTROL SAMPLE: 1802375

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	250	250	100	90-110	

SAMPLE DUPLICATE: 1802376

Parameter	Units	92309034001 Result	Dup Result	RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92309034

QC Batch:	325291	Analysis Method:	EPA 350.1 1993 Rev 2.0
QC Batch Method:	EPA 350.1 1993 Rev 2.0	Analysis Description:	350.1 Ammonia, EDEN
Associated Lab Samples:	92309034001		

METHOD BLANK: 1802114 Matrix: Water

Associated Lab Samples: 92309034001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.20	08/17/16 16:47	

LABORATORY CONTROL SAMPLE: 1802115

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.2	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1802116 1802117

Parameter	92309034001		MS	MSD	MS	MSD	MS	MSD	% Rec	RPD	Qual
	Units	Result	Spike Conc.	Spike Conc.							
Nitrogen, Ammonia	mg/L	0.62	5	5	5.2	5.2	92	91	90-110	1	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92309034

QC Batch: 325290

Analysis Method: SM 4500-Cl-E-2011

QC Batch Method: SM 4500-Cl-E-2011

Analysis Description: 4500 Chloride, EDEN

Associated Lab Samples: 92309034001

METHOD BLANK: 1802110

Matrix: Water

Associated Lab Samples: 92309034001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	08/17/16 12:53	

LABORATORY CONTROL SAMPLE: 1802111

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.9	109	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1802112 1802113

Parameter	Units	92309034001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Chloride	mg/L	42.6	10	10	53.4	52.4	108	98	90-110	2	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92309034

QC Batch: 325255

Analysis Method: EPA 1664B

QC Batch Method: EPA 1664B

Analysis Description: 1664 HEM, Oil and Grease

Associated Lab Samples: 92309034001

METHOD BLANK: 1802022

Matrix: Water

Associated Lab Samples: 92309034001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	08/17/16 08:49	

LABORATORY CONTROL SAMPLE: 1802023

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	40	35.7	89	78-114	

MATRIX SPIKE SAMPLE: 1802024

Parameter	Units	92308654001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	ND	40	40.9	97	78-114	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92309034

QC Batch: 325299

Analysis Method: EPA 245.1

QC Batch Method: EPA 245.1

Analysis Description: 245.1 Mercury

Associated Lab Samples: 92309034001

METHOD BLANK: 1802161

Matrix: Water

Associated Lab Samples: 92309034001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.10	08/17/16 13:17	

LABORATORY CONTROL SAMPLE: 1802162

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2.5	2.6	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1802163 1802164

Parameter	Units	92309034001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Mercury	ug/L	ND	2.5	2.5	2.5	2.5	101	98	70-130	3	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: Bremo Weekly Process
Pace Project No.: 92309034

QC Batch:	315498	Analysis Method:	EPA 200.7
QC Batch Method:	EPA 200.7	Analysis Description:	200.7 MET
Associated Lab Samples:	92309034001		

METHOD BLANK: 1675065 Matrix: Water
Associated Lab Samples: 92309034001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	ug/L	ND	3300	08/17/16 16:32	

LABORATORY CONTROL SAMPLE: 1675066

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tot Hardness asCaCO3 (SM 2340B	ug/L	165000	171000	104	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1675067 1675068

Parameter	Units	92309014001		MS		MSD		MS		MSD		% Rec Limits	RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Tot Hardness asCaCO3 (SM 2340B	ug/L	137000	165000	165000	314000	309000	107	104	70-130	2				

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: Bremo Weekly Process
Pace Project No.: 92309034

QC Batch: 315499 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET
Associated Lab Samples: 92309034001

METHOD BLANK: 1675069 Matrix: Water
Associated Lab Samples: 92309034001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	ND	5.0	08/17/16 15:48	
Arsenic	ug/L	ND	5.0	08/17/16 15:48	
Cadmium	ug/L	ND	1.0	08/17/16 15:48	
Copper	ug/L	ND	5.0	08/17/16 15:48	
Lead	ug/L	ND	5.0	08/17/16 15:48	
Nickel	ug/L	ND	5.0	08/17/16 15:48	
Selenium	ug/L	ND	5.0	08/17/16 15:48	
Silver	ug/L	ND	0.40	08/17/16 15:48	
Thallium	ug/L	ND	1.0	08/17/16 15:48	
Zinc	ug/L	ND	25.0	08/17/16 15:48	

LABORATORY CONTROL SAMPLE: 1675070

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	150	148	99	85-115	
Arsenic	ug/L	100	97.4	97	85-115	
Cadmium	ug/L	10	10.3	103	85-115	
Copper	ug/L	50	49.7	99	85-115	
Lead	ug/L	100	107	107	85-115	
Nickel	ug/L	50	51.7	103	85-115	
Selenium	ug/L	150	150	100	85-115	
Silver	ug/L	50	48.6	97	85-115	1g
Thallium	ug/L	150	156	104	85-115	
Zinc	ug/L	200	198	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1675071 1675072

Parameter	Units	92309026001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Antimony	ug/L	ND	150	150	154	154	101	101	70-130	0	
Arsenic	ug/L	ND	100	100	102	101	100	100	70-130	0	
Cadmium	ug/L	ND	10	10	10.3	10.1	103	101	70-130	2	
Copper	ug/L	ND	50	50	48.7	49.3	97	98	70-130	1	
Lead	ug/L	ND	100	100	112	110	112	110	70-130	1	
Nickel	ug/L	ND	50	50	53.4	53.1	103	103	70-130	1	
Selenium	ug/L	5.6	150	150	156	156	100	100	70-130	0	
Silver	ug/L	ND	50	50	48.5	47.4	97	95	70-130	2	2g,3g
Thallium	ug/L	ND	150	150	164	162	109	108	70-130	1	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: Bremo Weekly Process

Pace Project No.: 92309034

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1675071 1675072											
Parameter	Units	92309026001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Zinc	ug/L	ND	200	200	201	202	98	98	70-130	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: Bremo Weekly Process
Pace Project No.: 92309034

QC Batch:	315518	Analysis Method:	EPA 218.7
QC Batch Method:	EPA 218.7	Analysis Description:	Chromium, Hexavalent IC
Associated Lab Samples:	92309034001		

METHOD BLANK: 1675134 Matrix: Water
Associated Lab Samples: 92309034001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Hexavalent	ug/L	ND	1.0	08/17/16 11:58	

LABORATORY CONTROL SAMPLE: 1675135

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	ug/L	.075	.082J	110	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1675136 1675137

Parameter	Units	92309034001 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits		
Chromium, Hexavalent	ug/L	ND	.025	.025	.31J	.31J	120	132	85-115	1	E,M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALIFIERS

Project: Bremo Weekly Process

Pace Project No.: 92309034

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-C	Pace Analytical Services - Charlotte
PASI-E	Pace Analytical Services - Eden
PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

1g	Analyzed 08/23/16 10:44:31
2g	Analyzed 08/23/16 10:48:08
3g	Analyzed 08/23/16 10:51:43
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA CROSS REFERENCE TABLE

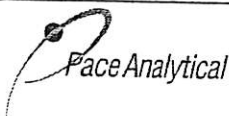
Project: Bremo Weekly Process

Pace Project No.: 92309034

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92309034001	T3-160816-1210-S3	SM 2540D	325341		
92309034001	T3-160816-1210-S3	EPA 350.1 1993 Rev 2.0	325291		
92309034001	T3-160816-1210-S3	SM 4500-CI-E-2011	325290		
92309034001	T3-160816-1210-S3				
92309034001	T3-160816-1210-S3	EPA 1664B	325255		
92309034001	T3-160816-1210-S3	EPA 200.7	315498	EPA 200.7	315575
92309034001	T3-160816-1210-S3	Trivalent Chromium Calculation	315595		
92309034001	T3-160816-1210-S3	EPA 200.8	315499	EPA 200.8	315576
92309034001	T3-160816-1210-S3	EPA 245.1	325299	EPA 245.1	325343
92309034001	T3-160816-1210-S3	EPA 218.7	315518		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

	Document Name:	Document Revised: May 24, 2016
	Sample Condition Upon Receipt(SCUR)	Page 1 of 2
	Document No.: F-MEC-CS-009-Rev.03	Issuing Authority: Pace Mechanicsville Quality Office

Page 2 of 2 for Internal Use ONLY

Sample Condition Upon Receipt

Client Name:

Golder/Bremo

Project #:

WO#: 92309034



Courier:

☐ Commercial

☒ Fed Ex

☒ Pace

☐ UPS

☐ USPS

☐ Other:

☐ Client

Custody Seal Present?

☒ Yes

☐ No

Seals Intact?

☒ Yes

☐ No

Packing Material:

☐ Bubble Wrap

☒ Bubble Bags

☐ None

☐ Other:

Thermometer:

☒ RMD001

☐

Type of Ice:

☒ Wet

☐ Blue

☐ None

☒ Samples on ice, cooling process has begun

Date/Initials Person Examining Contents: 8-16-16

RSB

Correction Factor: 0.0°C

Cooler Temp Corrected (°C):

1.4

Biological Tissue Frozen?

☐ Yes

☐ No

☐ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?

☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

			Comments/Discrepancy:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Short Hold Time Analysis (<72 hr.)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Rush Turn Around Time Requested?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.	
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Samples Field Filtered?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	8.	Note if sediment is visible in the dissolved container
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Includes Date/Time/ID/Analysis Matrix: <u>WW</u>			
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	HNC3 pH<2 HCl pH<2 H2SO4 pH<2 NaOH pH>12 NaOH/ZnOAc pH>9
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Samples checked for dechlorination?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Headspace in VOA Vials (>5-6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12.	
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.	
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted:

Comments/Sample

Discrepancy:

Date/Time:

Project Manager SCURF Review:

NMG

Date:

8/17/16

Project Manager SRF Review:

NMG

Date:

8/17/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

The Chain-of-Custody is a **LEGAL DOCUMENT**. All relevant fields must be completed accurately

[illegible]